

## **Exhibit 74**

# **PLAINTIFFS' RESPONSE TO DEFENDANTS' MOTION TO EXCLUDE GENERAL CAUSATION TESTIMONY OF PLAINTIFFS' EXPERTS**

Case No.: 4:22-md-03047-YGR

MDL No. 3047

In Re: Social Media Adolescent Addiction/Personal Injury Products Liability Litigation

# YouTube as a Source of Educational Content in Teenagers' Learning Practices

Zinaida Adelhardt and Thomas Eberle

Friedrich-Alexander University Erlangen-Nürnberg, Germany

[zinaida.adelhardt@fau.de](mailto:zinaida.adelhardt@fau.de)

[office@thomaseberle.de](mailto:office@thomaseberle.de)

**Abstract:** YouTube is one of the most popular online social spaces nowadays combining features of both a huge repository of information and a social networking service. Millions of people use this video-sharing platform daily. Entertainment (sports, comedy, music, movie trailers), information seeking (missed news, product reviews, research on a specific topic), and educational purposes (how-to videos, learning math, or tactics for video games) were discussed as main motivational aspects for watching YouTube videos (Lagger et al. 2017). Usage of YouTube for educational purposes became particularly relevant for teenagers as a support for their home-schooling. Our goal is to find out what strategies teenagers use to find relevant educational content on the service and how important this content was for their everyday learning practices before and during the COVID pandemic. We analyzed online behavior of 34, 14 to 15-year old teenagers (47% male) who took part in a long-term adventure trip with digital media left aside. We gathered quantitative data seven months before the trip (March 2019), just before the trip (October 2019), on the last day of the trip (April 2020), and five months after the trip (September 2020). We also conducted in-depth interviews with nine teenagers, who named YouTube as their favourite online service. Our intention is now to conduct nine additional interviews with the same teenagers to see whether their everyday learning practices changed within the last year. Implications drawn from this study, further research perspectives, and limitations will be presented and discussed.

**Keywords:** YouTube usage patterns, educational benefits of YouTube, social media overuse, teenage usage of social networks, online learning

## 1. Introduction

YouTube is an US-American online video-sharing platform and one of the most popular online social spaces combining features of both a huge repository of information and a social networking service. Due to its data traffic, it is the second biggest website worldwide, second only to its holding company – Google (Alexa Internet). The amount of new content on the platform, and the number of people watching, are growing constantly, with platform users uploading more than 500 hours of fresh video content per minute (Tubefilter). The platform provides a huge variety of both user-generated and corporate media content, including video clips, music videos, documentary films, live streams, video blogs, educational videos, etc.

YouTube was founded in 2005 and just several years later first articles addressing the potential educational value of YouTube appeared, giving educators and teachers advice on how to choose and integrate video material from YouTube in their classes (Mullen & Wedwick 2008; Berk 2009; Jones & Cuthrell 2011). Video technology in general, and YouTube videos in particular, were argued to be an especially effective modes of instruction and learning. Berk (2009) describes video as a vital tool for learning as it utilizes both hemispheres of the brain and activates all core intelligences. The left hemisphere processes language and the right hemisphere processes nonverbal input such as visual images, colour and sound effects. Video also taps into the core intelligences of the human brain – verbal/linguistic, visual/spatial, and musical/rhythmic - encompassing all of the ways that the human brain learns (Berk, 2009). In this way, video technology creates the ideal learning situation.

YouTube as an educational tool receives growing attention from researchers and teachers. Research appeared analysing student perceptions towards the use of YouTube as an educational tool for learning (Maziriri et al. 2020; Buzzetto-More 2015). A modified conceptual model based on the technology acceptance model (TAM) was proposed by Maziriri et al. to explain student perceptions, attitudes, and intentions to adopt YouTube as an education tool. They found that perceived usefulness has a more significant impact on university student perceptions toward learning through YouTube in comparison to the perceived ease of use. Incorporation of YouTube into course instruction was found to enhance student's perception of learning efficacy and increase engagement (Buzzetto-More 2015).

The YouTube studies are mostly focusing on adoption and usage of YouTube within secondary or high school settings as an in-class experience. Our focus is on teenagers' usage of YouTube for educational purposes at home and their perceived usefulness of YouTube for general education.

Home-schooling due to Corona-Pandemic made self-education and effective search for information even more important than before. Our aim is to reveal what strategies teenagers use to find relevant educational content on the YouTube platform and how important this content was for their everyday learning practices before and during the COVID pandemic. Additionally, we are going to check the consistency of teenagers' attitudes towards YouTube and the consistency of their YouTube usage practices. Our ambition is also to check what factors may be crucial for teenagers' perception of YouTube usefulness.

## **2. Methods**

To assess how constant teenagers' perceptions of YouTube and YouTube usage practices are, we decided to use a longitudinal design which included the long-term media withdrawal phase.

### **2.1 Sample**

We examined the YouTube usage and YouTube related attitudes of 34, 14 to 15-year-old teenagers ( $M=14.5$ ,  $SD=.57$ ; 47% male). All teenagers were attending gymnasiums (grammar schools) in different regions of Germany. The peculiarity of the group is the fact that the teenagers volunteered to take part in a sailing adventure that lasted half a year between October 2019 and April 2020. The usage of digital media was forbidden during the trip, except for a limited time during some land stops.

### **2.2 Instruments**

Data were collected through a questionnaire and individual in-depth interviews.

To assess self-reported frequency of general media usage, we applied relevant subscales from *the Media and Technology Usage and Attitudes Scale (MTUAS)* (Rosen et al. 2013). The usage part of the scale consists of 11 separate subscales, e.g., video gaming, e-mailing, text messaging. We applied two subscales that can be potentially relevant for YouTube use - Internet searching and media sharing. All questions are answered on a 10-item frequency response scale from 1 (never) to 10 (all the time).

To measure YouTube usage of teenagers we asked the following question: "How often do you use YouTube?". Answers were possible on a 7-point scale from "never used" up to "very often". We also asked an open question: "What is your favourite online social network?".

Nine teenagers named YouTube as their favourite service before the trip. We invited all of them for interviews half a year after the trip and all teenagers accepted our invitation. Individual in-depth semi-structured interviews were conducted via videoconferencing software Zoom and included 12-16 questions (e.g., "What YouTube channels do you follow?", "Did you miss YouTube during the trip?", etc.). The length of interviews was between 40 and 60 minutes, depending on teenagers' previous experiences with media in general and YouTube in particular.

### **2.3 Data Collection and Analysis**

Teenagers completed questionnaires three times: six and a half months before the trip (March 2019, T0), directly before the trip (October 2019, T1), and five months after the trip (September 2020, T3). For gathering data SoSci Survey online web-application was applied. Individual in-depth interviews were conducted via Zoom in December 2020, all interviews were recorded and transcribed. More interviews are planned.

Statistical analyses were performed with the IBM SPSS Statistic Software (Version 26). All values in data sets were valid (no missing values).

## **3. First results and discussion**

YouTube usage has significantly dropped after the trip ( $p=.017$ ,  $d=0.41$ ). Before the trip (T1), 41.2% of teenagers stated to use YouTube "very often", while after the trip, only 11.8% stated so. At T1 5.9% of teenagers reported that they never used YouTube before and the same stayed true at T4. Boys were found to use YouTube significantly more than girls (boys  $M=5.19$ ,  $SD=1.328$ ; girls  $M=3.83$ ,  $SD=2.007$ ;  $p=.029$ ,  $d=0.8$ ).

Internet searching and media sharing have not changed significantly after the intervention ( $M=4.55$ ,  $SD=2.15$  vs.  $M=4.42$ ,  $SD=1.44$  and  $M=2.47$ ,  $SD=1.19$  vs.  $M=2.68$ ,  $SD=1.39$  respectively), with internet searching being much more popular practice than media sharing ( $p=.00$ ).

Interviews revealed that the main reason to use YouTube for teenagers is entertainment. However, YouTube is also an important source of educational information. Teenagers use YouTube both on computer and on smartphone. Some search directly in YouTube, while others use google first. Normally the choice of videos relates to school topics and to teenagers' private interests. For example, one boy plays guitar, so he searches for videos to learn new melodies; a girl loves singing and searches online for new songs; another boy draws and looks for videos for inspiration and to learn new techniques.

Most of the teenagers used YouTube regularly for school and this purpose accounts for 10 to 50 % of their overall usage. One respondent said, "A lot of topics that I for example haven't got in class, I can watch there again and they are again explained and visualized, so it is much easier for me to understand" (Paul, 14 / names changed). Several teenagers mentioned "MyLab" and "Simpleclub", mostly German online learning platforms with several YouTube channels that provide free online tutoring focusing on different disciplines for school and college students. However, several teenagers noticed that it is sometimes hard to concentrate on useful topics; they are easily distracted and they can press one or two buttons and watch something else. One respondent commented, "At the beginning I watch video on the topic and then other video is suggested regarding to another topic and I go there, click on it although it has nothing to do with the topic, but is still interesting and then..." (Andreas, 15).

#### 4. Preliminary conclusions and limitations

The results shown that teenagers extensively use YouTube in search for information in general and school-related topics in particular. A long-term separation from digital media reduced the overall appeal of YouTube and influenced teenagers' usage of the platform. We revealed a general narrowing of video types that teenagers watch, the increased interest in informational videos with more attention on topics instead of persons and generally a more critical attitude to digital media and the YouTube service.

Our research has several limitations in relation to our sample and research methodology. We have a relatively small sample. To quantify teenagers' usage of YouTube, we rely on self-reported estimates; though is a widely used method, the real use may differ from self-reported figures (Andrews et al. 2015). Additionally, teenagers might have given socially desirable answers. Despite these limitations, the importance of YouTube for education as a support for teenagers' learning practices stay obvious.

#### References

- Alexa Internet: The top 500 sites on the web. Alexa Internet, Inc. Online available at <https://www.alexa.com/topsites>, last visit 04.01.2022.
- Andrews, S.; Ellis, D- A.; Shaw, H.; Piwek, L. (2015) Beyond Self-Report: Tools to Compare Estimated and Real-World Smartphone Use. In: *PLoS one* 10 (10).
- Berk, R. A. (2009) Multimedia teaching with video clips: TV, movies, YouTube, and mtvU in the college classroom. In: *International Journal of Technology in Teaching and Learning* 5(1), S. 1–21.
- Buzzetto-More, N. (2015) Student Attitudes Towards The Integration Of YouTube In Online, Hybrid, And Web-Assisted Courses: An Examination Of The Impact Of Course Modality On Perception. In: *Journal of Online Learning and Teaching* (Vol. 11, No. 1), S. 55–73.
- Jones, T.; Cuthrell, K. (2011) YouTube: Educational Potentials and Pitfalls. In: *Computers in the Schools* 28 (1), S. 75–85.
- Lagger, C.; Lux, M.; Marques, O. (2017) What Makes People Watch Online Videos. In: *Computers in Entertainment* 15 (2), S. 1–31.
- Maziriri, E. T.; Gapa, P.; Chuchu, T. (2020) Student Perceptions Towards the use of YouTube as An Educational Tool for Learning and Tutorials. In: *International Journal of Instruction* 13 (2), S. 119–138.
- Mullen, R.; Wedwick, L. (2008) Avoiding the Digital Abyss: Getting Started in the Classroom with YouTube, Digital Stories, and Blogs. In: *The Clearing House: A Journal of Educational Strategies, Issues and Ideas* 82 (2), S. 66–69.
- Rosen, L. D.; Whaling, K.; Carrier, L. M.; Cheever, N. A.; Rokkum, J. (2013): The Media and Technology Usage and Attitudes Scale: An empirical investigation. In: *Computers in Human Behavior* 29 (6), S. 2501–2511.
- Tubefilter: More than 500 hours of content are now being uploaded to YouTube every minute. Tubefilter, Inc. Available at <https://www.tubefilter.com/2019/05/07/number-hours-video-uploaded-to-youtube-per-minute/>, last visit 04.01.2022.